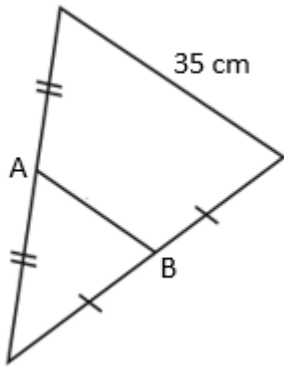
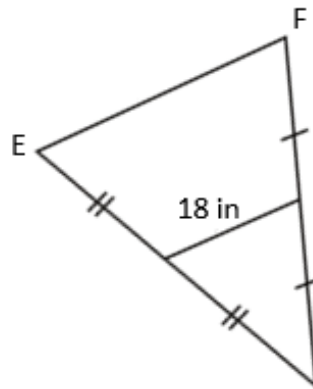


Triangle Midsegment and Perpendicular Bisectors

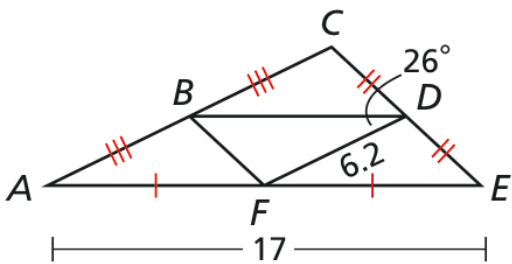
1. Find the length of segment AB.



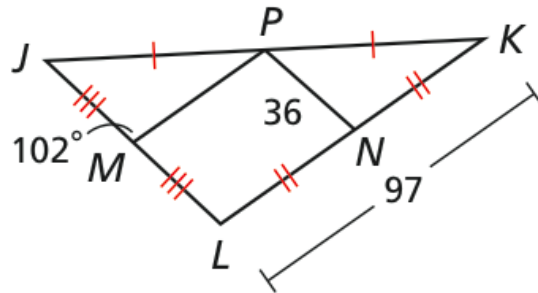
2. Find the length of segment EF.



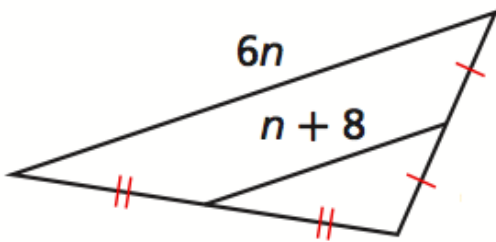
3. A. Find the length of segment BD.  
B. Find  $m\angle DBC$ .



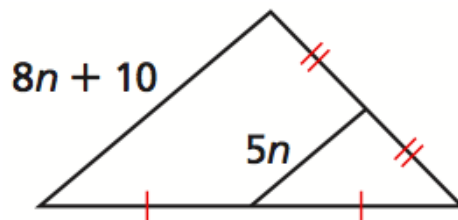
4. A. Find the length of segment MP.  
B. Find  $m\angle MLK$ .  
C. Find the length of segment JL.



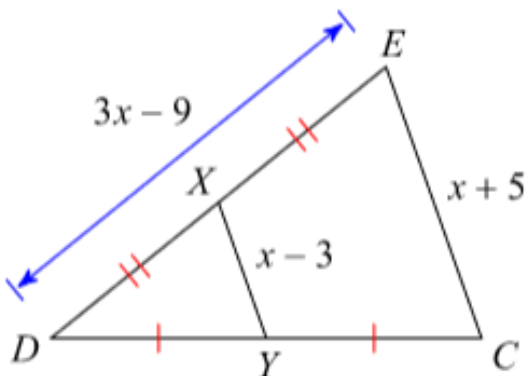
5. Find the value of  $n$  and the length of each marked side.



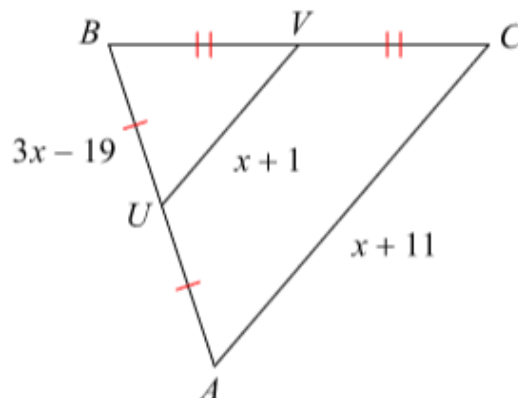
6. Find the value of  $n$  and the length of each marked side.



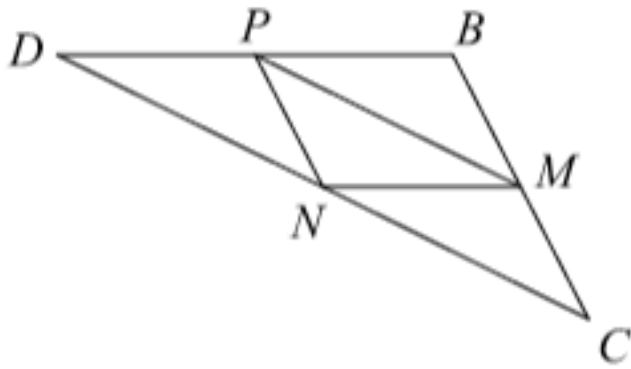
7. Find the length of segment CE.



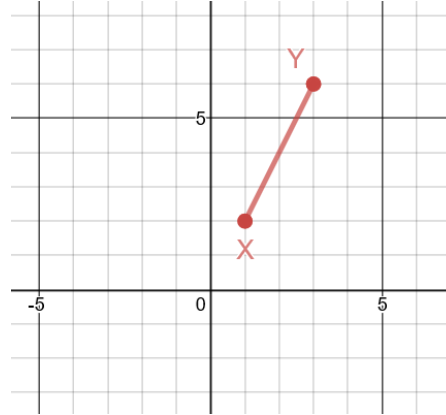
8. Find the length of segment UV.



9. M, N, and P are the midpoints of the sides. Name all pairs of parallel segments. What is  $\triangle MNP$  called?



10. Find the equation of the perpendicular bisector of segment XY.  $X(1, 2)$  and  $Y(3, 6)$ .



11. Find the equation of the perpendicular bisector of segment XY.  $X(7, 9)$  and  $Y(-3, 5)$ .

12. Find the equation of the perpendicular bisector of segment XY.  $X(14, 18)$  and  $Y(-6, 10)$ .

13. Find the equation of the perpendicular bisector of segment XY.  $X(12, 15)$  and  $Y(-9, -13)$ .

14. A. Write the equation of the line that passes through points  $(1.5, 3)$  and  $(2.5, -5)$ .

B. Write the equation of the line that is parallel to the line you found in part A and passes through point  $(-3, 5)$ .

C. Write the equation of the line that is perpendicular to the line you found in part A and passes through point  $(16, 7)$ .

### Triangle Midsegment Investigation

- Sketch  $\triangle ABC$  on the graph paper:  $A(-5, -2)$ ,  $B(3, -4)$ ,  $C(1, 6)$
- Draw segment DE, the midsegment of  $\triangle ABC$ :  $D(-2, 2)$ ,  $E(2, 1)$
- Find the length of segment AB and segment DE. Give your answers in simplified radical form. How do the two lengths compare? Find the slope of line DE. Find the slope of line AB. Compare them. What does this tell you about the midsegment?
- Compare length AD with length DC? What does this mean about point D?
- Compare length BE with length EC? What does this mean about point E?
- Summarize three properties of the triangle midsegment.
- Find the midpoint of AB and label it F. Connect segments to form  $\triangle DEF$ . This is the midsegment triangle.
- Mark any congruent or parallel parts on your diagram.
- Glue the graph paper in your notes next to your findings.